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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/727,090	12/02/2003	David C. Bliven	A-71429-1/RMA	6011

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DORSEY & WHITNEY LLP
555 CALIFORNIA STREET, SUITE 1000
SUITE 1000
SAN FRANCISCO, CA 94104

EXAMINER

CHUO, TONY SHENG HSIANG

ART UNIT PAPER NUMBER

1745

DATE MAILED: 08/03/2006

Please find below and/or attached an Office communication concerning this application or proceeding.

Office Action Summary

Application No.

10/727,090

Applicant(s)

BLIVEN ET AL.

Examiner

Tony Chuo

Art Unit

1745

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --
Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☒ Responsive to communication(s) filed on 03 July 2006.
- 2a) ☐ This action is **FINAL**. 2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) ☒ Claim(s) 1-30 is/are pending in the application.
- 4a) Of the above claim(s) 1-13, 17, 18 and 28-30 is/are withdrawn from consideration.
- 5) ☐ Claim(s) _____ is/are allowed.
- 6) ☒ Claim(s) 14-16 and 19-27 is/are rejected.
- 7) ☒ Claim(s) 23 is/are objected to.
- 8) ☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☒ The drawing(s) filed on 19 May 2004 is/are: a) ☒ accepted or b) ☐ objected to by the Examiner.
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

- 12) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☐ All b) ☐ Some * c) ☐ None of:
1. ☐ Certified copies of the priority documents have been received.
2. ☐ Certified copies of the priority documents have been received in Application No. _____.
3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).
- * See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

- 1) ☒ Notice of References Cited (PTO-892)
- 2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
- 3) ☒ Information Disclosure Statement(s) (PTO-1449 or PTO/SB/08)
Paper No(s)/Mail Date 6/16/06, 7/3/06.
- 4) ☐ Interview Summary (PTO-413)
Paper No(s)/Mail Date. _____.
- 5) ☐ Notice of Informal Patent Application (PTO-152)
- 6) ☐ Other: _____.

DETAILED ACTION

Election/Restrictions

1. Applicant's election of Group III in the reply filed on 7/3/06 is acknowledged. Because applicant did not distinctly and specifically point out the supposed errors in the restriction requirement, the election has been treated as an election without traverse (MPEP § 818.03(a)).

Claim 1-13, 17-18, and 28-30 are withdrawn from further consideration pursuant to 37 CFR 1.142(b) as being drawn to a nonelected Groups I, II, and IV, there being no allowable generic or linking claim. Election was made **without** traverse in the reply filed on 7/3/06.

Priority

2. Priority is granted provisional application no. 60/430,591 and 60/431,139 for claims 14 and 27 for the DC-DC voltage boost circuit, microcontroller, battery, and cellular phone and claims 15, 16, and 19-22 under 35 USC 119(e). However, Priority is not granted for provisional application no. 60/430,591 and 60/431,139 for claims 14 and 27 for the storage capacitor and claims 23-26 under 35 USC 119(e). Priority is also not granted for provisional application no. 60/517,469 under 35 USC 119(e) because of the different inventorship.

Information Disclosure Statement

3. The information disclosure statements (IDS) submitted on 6/16/06 and 7/3/06 were filed on 6/16/06 and 7/3/06. The submission is in compliance with the provisions

of 37 CFR 1.97. Accordingly, the information disclosure statements are being considered by the examiner.

Claim Objections

4. Claim 23 is objected to because of the following informalities: on line 4, the word "in" should be changed to "is". Appropriate correction is required.

Claim Rejections - 35 USC § 112

5. The following is a quotation of the second paragraph of 35 U.S.C. 112:

The specification shall conclude with one or more claims particularly pointing out and distinctly claiming the subject matter which the applicant regards as his invention.

6. Claim 22 recites the limitation "said microprocessor" in line 1. There is insufficient antecedent basis for this limitation in the claim.
7. Claim 27 recites the limitations "said cellular telephone" in line 3, 4, and 14. There is insufficient antecedent basis for this limitation in the claim.
8. Claim 27 recites the limitation "said boot converter circuit" in line 6. There is insufficient antecedent basis for this limitation in the claim.
9. Claim 16 and 27 are rejected under 35 U.S.C. 112, second paragraph, as being indefinite for failing to particularly point out and distinctly claim the subject matter which applicant regards as the invention. The phrase "power drawn from and charge and discharge of a fuel cell" is unclear because fuel cells are not typically charged and discharged.
10. Claims 24-26 are rejected under 35 U.S.C. 112, second paragraph, as being indefinite for failing to particularly point out and distinctly claim the subject matter which

Art Unit: 1745

applicant regards as the invention. The subject matter of claims 24-26 is indefinite because there are two statutory inventions being claimed in each claim, one for the apparatus and the other for the method (i.e. the limitations implying steps such as a) "is not turned on or turned off", b) "the load test is performed", c) "operation of the boost circuit is further regulated"). Regarding claim 25, the subject matter has not been examined based on the merits because it is indefinite.

Claim Rejections - 35 USC § 102

11. The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

A person shall be entitled to a patent unless –

(e) the invention was described in (1) an application for patent, published under section 122(b), by another filed in the United States before the invention by the applicant for patent or (2) a patent granted on an application for patent by another filed in the United States before the invention by the applicant for patent, except that an international application filed under the treaty defined in section 351(a) shall have the effects for purposes of this subsection of an application filed in the United States only if the international application designated the United States and was published under Article 21(2) of such treaty in the English language.

12. Claims 14-16 and 19-21 are rejected under 35 U.S.C. 102(e) as being anticipated by Speranza et al (US 2003/0072977). Regarding claim 14, the Speranza reference teaches an interface circuit for a fuel cell powered electronic device comprising: a DC-DC converter within controller/DC-DC power supply "44" that senses the power generated by the fuel cell and a capacitor "48" coupled to and receiving charge generated by the DC-DC converter (See Figure 1 and paragraph [0041]).

Regarding claim 15, the phrase "adapted for" is not construed as a positive limitation so the prior art only needs to be capable of performing that function. The

interface circuit taught by Speranza et al is capable of being adapted for use with a specific model of a cellular phone.

Regarding claim 16, the phrase "adapted to" is not construed as a positive limitation so the prior art only needs to be capable of performing that function. The interface circuit taught by Speranza et al is capable of being adapted to control and regulate power drawn from a fuel cell and maintain safe operation within predefined voltage, current, and power ranges.

Regarding claim 19, it also teaches a battery and controller/DC-DC power supply that limits a battery charging current so that no significant current would be drawn by the battery after the battery is charged (See paragraph [0042]).

Regarding claim 20, it also teaches a controller/DC-DC power supply "44" that is used to convert the power from the secondary power source "100" to a power receivable by the feeder bus "38" and charging the battery and capacitor (See paragraphs [0032],[0042]).

Regarding claim 21, it also teaches a controller/Dc-Dc power supply "44" that can monitor the status of the primary power source "32" and the secondary power source "100" so that switching to the appropriate power source may be determined and controlled (See paragraph [0038]).

Claim Rejections - 35 USC § 103

13. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

Art Unit: 1745

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

14. Claims 22 is rejected under 35 U.S.C. 103(a) as being unpatentable over Speranza et al (US 2003/0072977) in view of Margiott et al (US 2003/0031899). The Speranza reference is applied to claims 14-16 and 19-21 for reasons stated above. However, the reference does not expressly teach a microprocessor that is adapted to execute computer program instructions to modify and control the operation of the microcontroller. The Margiott reference teaches program instructions that are executed by the processor "62" to change the set point of the controller "56" (See paragraph [0037]). Therefore, it would have been obvious to one of ordinary skill in the art at the time the invention was made to modify the Speranza interface circuit to include a microprocessor that is adapted to execute computer program instructions to modify and control the operation of the microcontroller in order to provide an improved apparatus for changing the state of operation of a fuel cell so that damage to the fuel cells is prevented by properly controlling these state changes.

15. Claims 23, 24, and 26 are rejected under 35 U.S.C. 103(a) as being unpatentable over Speranza et al (US 2003/0072977) in view of Margiott et al (US 2003/0031899) as applied to claim 22 above, and further in view of Ihara et al (JP 2001-275261). In addition, the Speranza reference also teaches a boost circuit that is regulated by hardware components that include feedback control elements such as the controller/DC-DC power supply "44" (See paragraph [0041]). However, the references do not expressly teach computer program instructions that include an instruction to

Art Unit: 1745

perform a fuel cell load test including applying an incremental load to the fuel cell and determining a resulting fuel cell output voltage, the fuel cell load test being failed if the fuel cell is unable to maintain a predetermined output voltage level or a boost circuit that is not turned on or turned off if the fuel cell load test is failed. The Ihara reference teaches a load testing apparatus "1" for load testing a fuel cell by "13" boosting or stepping down a voltage of the fuel cell to detect a current to a load resistor "2" to control ON/OFF of a switching transistor "3" so as to supply a set current to the resistor "2" (See Abstract). Examiner's note: Claim 24 is construed as an all encompassing claim because there are only two possible operating states of the boost circuit, i.e. on or off.) Therefore, it would have been obvious to one of ordinary skill in the art at the time the invention was made to modify the Speranza interface circuit to include computer program instructions that include an instruction to perform a fuel cell load test including applying an incremental load to the fuel cell and determining a resulting fuel cell output voltage, the fuel cell load test being failed if the fuel cell is unable to maintain a predetermined output voltage level or a boost circuit that is not turned on or turned off if the fuel cell load test is failed in order to accurately determine whether is fuel cell is able to generate the desired amount of power for the load and maintain proper performance of the fuel cell.

16. Claims 27 is rejected under 35 U.S.C. 103(a) as being unpatentable over Speranza et al (US 2003/0072977) in view of Peled et al (US 6492047) as evidenced by the applicant's admission of prior art (Specification, page 8, line 22-26). The Speranza reference teaches an interface circuit for a fuel cell powered electronic device comprising: a DC-DC converter within controller/DC-DC power supply "44" that senses

the power generated by the fuel cell and a capacitor "48" and battery "49" coupled to and receiving charge generated by the DC-DC converter (See Figure 1 and paragraph [0041],[0042]). Examiner's note: The phrase "adapted to" is not construed as a positive limitation so the prior art only needs to be capable of performing that function. The interface circuit taught by Speranza et al is capable of being adapted to control and regulate power drawn from a fuel cell and maintain safe operation within predefined voltage, current, and power ranges and to execute instructions to modify and control the operation of the microprocessor and coupled to the boost circuit for controlling operation or non-operation of the boost circuit based on a fuel cell output voltage. However, the reference does not expressly teach boosting a lower fuel cell output voltage to a higher voltage operating voltage of a cellular phone or a cellular phone that has a power consumption ranging between substantially 10 watts and 60 watts and an operating voltage range between substantially 5 volts and 20 volts. The Peled reference teaches a cellular phone that is powered by a hybrid power source comprising fuel cells, a DC-DC converter, and a high power lithium ion cell (See column 9, lines 9-14). In addition, the applicant's specification discloses that cellular phones that have power consumption ranging between substantially 10 watts and 60 watts and an operating voltage range between substantially 5 volts and 20 volts are known in the art (See page 8, lines 22-26). Therefore, it would have been obvious to one of ordinary skill in the art at the time the invention was made to modify the Speranza interface circuit to include boosting a lower fuel cell output voltage to a higher voltage operating voltage of a cellular phone and a cellular phone that has a power consumption ranging between substantially 10

Art Unit: 1745

watts and 60 watts and an operating voltage range between substantially 5 volts and 20 volts in order to provide a practical application for the interface circuit.

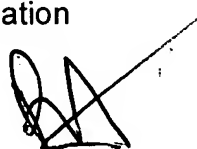
Conclusion

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Tony Chuo whose telephone number is (571) 272-0717. The examiner can normally be reached on M-F, 8:30AM to 5:00PM.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Patrick Ryan can be reached on (571) 272-1292. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free). If you would like assistance from a USPTO Customer Service Representative or access to the automated information system, call 800-786-9199 (IN USA OR CANADA) or 571-272-1000.

TC


RAYMOND ALEJANDRO
PRIMARY EXAMINER